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### NMRC-A Researchers Collaborate with Malaysian Partners to Better Understand the Threat of MERS

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*This image was captured during an investigation into the first reported Middle East Respiratory Syndrome Coronavirus (MERS-CoV) case in Haramout, Yemen. The study was led by Field Epidemiology Training Program (FETP) residents. In this particular view, veterinarian Hasan Alkaf, D.V.M., is shown extracting blood samples from a camel's neck, as the animal was held in check by an assistant. (Photo from Centers for Disease Control and Prevention (CDC))*

SILVER SPRING, Md. - The annual meeting of the American Society of Tropical Medicine and Hygiene (ASTMH) offers researchers around the globe an opportunity to showcase their work.

The 65<sup>th</sup> annual ASTMH meeting was held in Atlanta, Georgia, Nov. 13 – 17. Attending this year's meeting were personnel from the U.S. Naval Medical Research Center – Asia (NMRC-A), based in Singapore, and its detachment, the U.S. Naval Medical Research Unit -2 (NAMRU-2), based in Phnom Penh, Cambodia.

Among the work presented by NMRC-A and NAMRU-2 was a study considering the risk that the Middle East Respiratory Syndrome (MERS) coronavirus poses a threat to travelers going to and from Saudi Arabia during the Hajj pilgrimage.

Since its appearance in 2012, the MERS virus has emerged as a serious public health threat of global concern. Specifically, the NMRC-A study, led by Lt. Cmdr. Brian Pike, who leads NMRC's Emerging Infectious Diseases Program, investigates how the spread of the MERS virus may be facilitated by high population mobility and mass gatherings, such as the Hajj pilgrimage. Approximately two million Muslims journey to the region most impacted by the virus each year. Two of the most frequently visited cities during the Hajj, Mecca and Medina, have contributed nearly 10 percent of the known cases to the present epidemic. From a military perspective, data

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derived from this study may also prove useful in assessing the risk that the MERS virus poses to U.S. Military personnel deployed to the Middle East.

According to the Centers for Disease Control and Prevention (CDC) web site, MERS is a viral respiratory illness first reported in Saudi Arabia in 2012 and has since spread to several other countries. Most people infected with MER-CoV, the virus that causes MERS, developed severe acute respiratory illness, including fever, cough, and shortness of breath. The illness can be fatal and there is no vaccine available to protect against MERS.

In collaboration with colleagues at the University of Malaya's Tropical Infectious Diseases Research & Education Centre (TIDREC) at the University of Malaya, Pike presented on the establishment of a multi-year cohort of Hajj pilgrims traveling between the Middle East and Malaysia, a country that sees tens of thousands of its citizens travel to the Middle East each year for the purpose of the Hajj. Within this cohort, serological analysis of pre and post travel blood samples were paired with questionnaire data to better estimate the risk of exposure to the virus during travel to the region most affected, as well as to assess the potential for the virus to spread beyond the Middle East.

Dr. Sazaly Abubakar, TIDREC's Director and the study's co-investigator, when speaking about the study said, "This study aims not only to address important scientific questions about the threat that the MERS virus poses to Malaysia, it also represents an excellent opportunity to expand upon the strong collaborative research relationship that TIDREC has with the U.S. Navy."

Initially funded by the Armed Forces Health Surveillance Center's Global Emerging Infections Surveillance and Response System, the long term aim of the established cohort is to model the influence that mass migrations of people have on the movement of the MERS virus and other infectious disease threats. Additional support from the Cooperative Biosecurity Engagement Program of the Defense Threat Reduction Agency will ensure this study continues into 2019.

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